

Application No. 10/764,787
Amendment "II" dated March 29, 2006
Reply to Office Action mailed February 27, 2006

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a computing system that has access to a set of control points defining an outline of a graphical object, a method for simplifying the control data that represents the outline of the graphical object, the method comprising:

identifying a plurality of local extrema on the outline of the graphical object;

identifying a plurality of sets of local extrema, each local extremum in a set of local extrema being on a common edge of the outline of the graphical object, each set of local extrema including one or more local extremum from the plurality of identified local extrema;

determining that control points interspersed between and/or at the local extremum of each set of local extrema are on a common edge of a simplified outline including when the control points are off of the outline of the graphical object; and

generating simplified control data that represents an outline of the common edges of a simplified graphical object of the graphical object, the simplified control data defining a common edge including straight line segments defined by and through the control points that are at least one of interspersed between or at the local extremum including when the control points are off of the outline of the graphical object.

2. (Original) The method as recited in claim 1, wherein identifying a plurality of local extrema on the outline of the graphical object comprises determining that the outline increases or decreases in the same direction at points adjacent to a point that is a prospective local extremum.

3. (Original) The method as recited in claim 1, wherein identifying a plurality of local extrema on the outline of the graphical object comprises identifying a plurality of local extrema on the outline of a typographical character.

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4. (Original) The method as recited in claim 1, wherein identifying a plurality of local extrema on the outline of the graphical object comprises calculating the derivative of an equation that defines how one or more control points are to be connected when rendering a portion of the outline.

5. (Original) The method as recited in claim 1, wherein identifying a plurality of sets of local extrema comprises determining that a plurality of local extrema are oriented in at least a similar direction.

6. (Original) The method as recited in claim 5, wherein determining that a plurality of local extrema are oriented in at least a similar direction comprises determining that a plurality of local extrema are oriented in the same direction.

7. (Previously Presented) The method as recited in claim 1, wherein identifying a plurality of sets of local extrema comprises determining that each local extremum in the plurality of local extrema is within a specified tolerance of immediately adjacent local extrema or control points.

8. (Previously Presented) The method as recited in claim 7, wherein determining that each local extremum in a plurality of local extrema is within a specified tolerance of immediately adjacent local extrema or control points comprises determining that each local extremum in a plurality of local extrema is within specified distance tolerance of immediately adjacent local extrema or control points.

9. (Previously Presented) The method as recited in claim 7, wherein determining that each local extremum in a plurality of local extrema is within a specified tolerance of immediately adjacent local extrema or control points comprises determining that each local extremum in a plurality of local extrema is within specified angle tolerance of immediately adjacent local extrema or control points.

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10. (Previously Presented) The method as recited in claim 1, wherein generating simplified control data that represents an outline of the common edges of the simplified graphical object comprises generating a reduced set of control points, the reduced set of control points representing the features of the outline without representing some variations that would otherwise be included in the outline.

11. (Previously Presented) The method as recited in claim 1, wherein generating simplified control data that represents an outline of the common edges of the simplified graphical object comprises generating simplified control data that represents an outline of the common edges of a typographical character.

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12. (Currently Amended) In a computing system that has access to a set of control points representing an outline of a graphical object, a method for determining that a local extremum and a control point off of the outline of the graphical object are on a common edge of a simplified outline, the method comprising:

identifying consecutive local extremum on the outline and control point off of the outline;

determining that the direction of the outline at both the consecutive local extremum and control point off of the outline is at least a similar direction; and

determining that the local extremum is within a specified tolerance of the control point off of the outline; and

generating simplified control data that represents an outline of common edges of a simplified graphical object of the graphical object, the simplified control data defining a common edge including straight line segments defined by and through the control points that are at least one of interspersed between or at the local extremum including when the control points are off of the outline of the graphical object.

13. (Previously Presented) The method as recited in claim 12, wherein identifying consecutive local extremum on the outline and control point off of the outline comprises identifying an extremum and control point of a typographical character.

14. (Previously Presented) The method as recited in claim 12, wherein identifying consecutive local extremum on the outline and control point off of the outline comprises determining that the outline increases or decreases in the same direction at points adjacent to the local extremum.

15. (Cancelled)

16. (Previously Presented) The method as recited in claim 12, wherein identifying consecutive local extremum on the outline and control point off of the outline comprises taking the derivative of an equation that defines how the local extremum and control point are to be connected when rendering the outline.

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17. (Previously Presented) The method as recited in claim 12, wherein determining that the direction of the outline at both the consecutive local extremum and control point off of the outline is at least a similar direction comprises determining that the direction of the outline at both the local extremum and control point is the same direction.

18. (Previously Presented) The method as recited in claim 12, wherein determining that the local extremum is within a specified tolerance of the control point off of the outline comprises determining that the local extremum is within a specified distance tolerance of the or control point.

19. (Previously Presented) The method as recited in claim 12, wherein determining that the local extremum is within a specified tolerance of the control point off of the outline comprises determining that the local extrema is within a specified angle tolerance of the control point.

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20. (Currently Amended) A computer program product for use in a computing system that has access to a set of control points representing an outline of a graphical object, the computer program, product for implementing a method for simplifying the control data that defines the outline of the graphical object, the computer program product comprising one or more computer-readable media having stored thereon computer executable instructions that, when executed by a processor, cause the computing system to perform the following:

identify a plurality of local extrema on the outline of the graphical object;

identify a plurality of sets of local extrema, each local extremum in a set of local extrema being on a common edge of the outline of the graphical object, each set of local extrema including one or more local extremum from the plurality of identified local extrema;

determine that control points interspersed between and/or at the local extremum of each set of local extrema are on a common edge of a simplified outline including when the control points are off of the outline of the graphical object; and

generate simplified control data that represents an outline of the common edges of a simplified graphical object of the graphical object, the simplified control data defining a common edge including straight line segments defined by and through the control points that are at least one of interspersed between or at the local extremum including when the control points are off of the outline of the graphical object.

21. (Previously Presented) The method as recited in claim 1, further comprising translating the simplified control data into hinting instructions.

22. (Currently Amended) The method as recited in claim 1, further comprising using the simplified control data can to facilitate recognition of the graphical object.

23. (Previously Presented) The method as recited in claim 22 further comprising manipulating control points using the recognition such that a better pixelated representation of the graphical object is rendered.